

Satsense Solutions Ltd
Remote Sensing | Geospatial Analyses

GROUND SUBSIDENCE DETECTION SERVICES

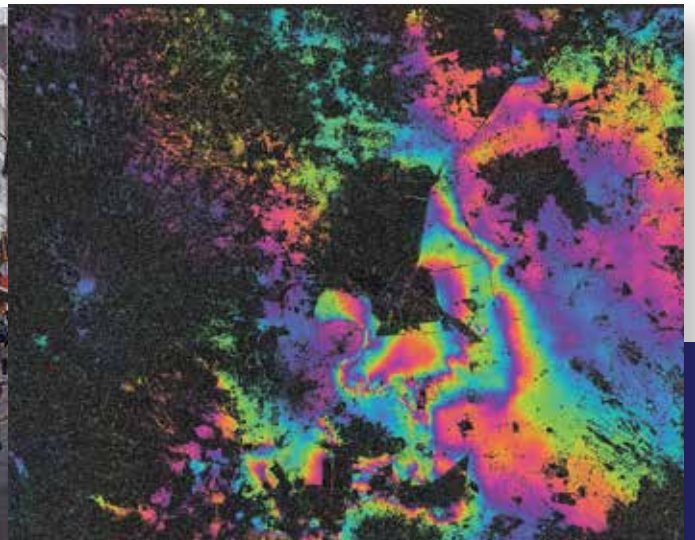
Ground subsidence is the downward settling of the ground's surface caused by natural events such as earthquakes, landslides or by human activities such as construction, sub-surface mining or extraction of underground fluids. Ground subsidence impacts the stability and safety of buildings and infrastructure such as roads, bridges and pipelines and is therefore critical for engineers, surveyors, urban planners, infrastructure operators, landowners and insurance companies to measure and assess ground subsidence both at the planning stage as well as on a regular basis.

Satsense® Ground Subsidence Detection Service provides a highly effective solution for measuring the level of subsidence over a given area.

What is the Satsense® Ground Subsidence Detection Services?

Satsense Solutions Ltd. uses remote sensing data from space-borne satellites to measure changes in ground surface levels over time. Changes in the phase of reflected Synthetic Aperture RADAR (SAR)-waves over time, indicates changes in ground surface levels.

- ▶ Subsidence is measured in mm, where positive values indicate uplift and negative values indicate subsidence of ground surface over a period of time
- ▶ Areas of low coherence are masked out to increase reliability





How are the services provided?

Site locations are specified by the client. Ground movement is measured and analysed using remote sensing technology without the need of surveyors and levelling instruments. The results can be provided in the form of raw data, Geo-TIFFs files or in report format, as per requirements.

Ground uplift of 2.5 - 3 cm over a period of 1 year was detected for this sub-urban area.
Ground subsidence of 2 cm over a period of 1 year was detected near natural gas pipeline site

Why use these Services?

Satsense® Ground Subsidence detection services provides the following benefits:

- ▶ Large geographic areas can be assessed remotely for ground movement, thereby allowing difficult to reach, dangerous or logistically too expensive to inspect areas to be covered
- ▶ Feasibility studies on ground movements for housing and infrastructure projects can be carried out without the need of onsite visits by surveyors or use of leveling instruments
- ▶ Regular monitoring of critical infrastructure can be achieved to assess safety and stability and act as an early warning indicator for any impending danger
- ▶ Impacts of natural calamities on surface levels can be measured

Who can use these Services?

Satsense® Ground Subsidence detection services can be used by a variety of businesses and government agencies:

- ▶ Infrastructure companies to determine suitable construction sites for roads, bridges, dams, pipelines and other critical infrastructure
- ▶ Mining companies and regulators to monitor the effect of sub-surface mining
- ▶ Pipeline operators for monitoring safety and structural integrity of pipelines
- ▶ Ground water regulators to analyze the effects of groundwater extraction
- ▶ Municipal Corporations to check the stability of sewer lines, storm water drains and under ground pipeline networks
- ▶ Home owners and home insurance companies to determine structural risks to property
- ▶ Insurance companies to analyze the impact of natural disasters like earthquakes & land slides

Satsense Solutions Ltd. applies Remote Sensing technology to provide unique & innovative business and governance solutions.

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Disclaimer: Remotely sensed data are generally recorded under changing environmental conditions, which might impact the accuracy of output data. Although results are based on well established methods and tools are thoroughly validated for accuracy, remotely sensed data are subject to natural variations of the atmosphere, local conditions etc. therefore Satsense Solutions Limited cannot take any responsibility caused by the usage and interpretation of remote sensing products. As with all measuring tools / systems, calibration based on in-situ data is recommended.

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